LEVERAGING ARTIFICIAL INTELLIGENCE FOR COMPETITIVE ADVANTAGE IN DIGITAL ENTREPRENEURSHIP: EXPLORING OPPORTUNITIES AND STRATEGIC IMPLICATIONS AMONG ENTREPRENEURS IN NIGERIA'S SOUTHEAST GEOPOLITICAL ZONE

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Abstract

This study investigates Leveraging Artificial Intelligence for Competitive Advantage in Digital Entrepreneurship: Exploring Opportunities and Strategic Implications among Entrepreneurs in Nigeria's Southeast Geopolitical Zone. *Survey research design was adopted. Two research objectives, corresponding research questions, and two hypothesis were formulated and tested at the 0.05 level of significance. The study population comprised 250 digital entrepreneurs, from which respondents were selected using the accidental sampling technique. Data were collected using a structured questionnaire titled* Leveraging Artificial Intelligence for Competitive Advantage in Digital Entrepreneurship (LAICADE)*, administered through Google Forms. The instrument was validated by two experts in the Department of Vocational and Entrepreneurial Education, University of Calabar. Internal consistency was established through a pilot test involving 50 respondents from Cross River and Akwa Ibom State which yielded a reliability coefficient of 0.79 using Cronbach's Alpha. Data were analyzed using the mean and standard deviation to answer the research questions, while correlation and regression analyses were employed to test the hypothesis. The findings revealed that entrepreneurs in Southeast Nigeria integrate Artificial Intelligence technologies into their digital business operations to a high extent, particularly in marketing automation, customer relationship management, operational efficiency, and data-driven decision-making. With respect to the second objective, the results showed that AI-driven strategies significantly enhance the competitive advantage of digital enterprises by improving innovation, adaptability to market changes, customer satisfaction, and overall business growth. The study concludes that AI adoption is a critical driver of competitive advantage and business performance among digital entrepreneurs in Southeast Nigeria. It is recommended that digital entrepreneurs invest in continuous AI training to close identified skill gaps, while government agencies provide supportive policies and infrastructure to encourage broader AI adoption. Stakeholders should also promote collaborations and innovations that foster AI-driven entrepreneurship, thereby strengthening Nigeria's position in the global digital economy.*

Keywords: Artificial Intelligence, Digital Enterprises, Competitive Advantage, Southeast Nigeria, Digital Entrepreneurship, AI Utilization.

Introduction

In the 21st century, the rapid evolution of digital technologies has transformed the global business landscape, ushering in a new era where digital entrepreneurship plays a central role in economic development and innovation. At the forefront of this transformation is Artificial Intelligence (AI)—a suite of technologies encompassing machine learning, natural language processing, robotics, and data analytics. AI has proven to be a game-changer for entrepreneurs by enhancing decision-

making, improving operational efficiency, personalizing customer experiences, and fostering innovation (Deloitte, 2020; Alabi & Atah, 2024). As the digital economy intensifies, AI adoption has transitioned from being a strategic advantage to a fundamental requirement for business sustainability and competitiveness (Brynjolfsson & McAfee, 2017; Otu, Ogala, Akputu, & Atah, 2024).

Digital entrepreneurship, defined by the use of digital platforms, tools, and technologies to create and manage business ventures, thrives on innovation, agility, and adaptability. The integration of AI into entrepreneurship provides entrepreneurs with unprecedented capabilities such as predictive analytics, intelligent automation, and real-time personalization. These features enable them to stay competitive in volatile and uncertain markets (Chalmers, MacKenzie, & Carter, 2020; Atah & Alabi, 2025a). AI-driven capabilities also offer pathways for entrepreneurs to reduce costs, optimize business models, scale operations efficiently, and enhance customer satisfaction (PwC, 2019; Onwubuya, Amobi, & Atah, 2025).

In Nigeria, digital entrepreneurship is gaining momentum, largely fueled by increased internet penetration, youth participation in the digital economy, and the rise of startup incubators and innovation hubs (GSMA, 2021; Okoli & Uka, 2023). The Southeast geopolitical zone, comprising Abia, Anambra, Ebonyi, Enugu, and Imo States, has witnessed a surge in entrepreneurial activities. Known for its dynamic and enterprising youth population, the region is increasingly adopting digital innovations (Chukwurah, Ben, Atah, Wonah, Idike, & Ingwe, 2023). Despite this progress, the extent to which digital entrepreneurs in Southeast Nigeria are strategically adopting AI to secure competitive advantage remains underexplored (Onyema, 2020; Atah, Akeke, Ajuluchukwu, Aderibigbe, Wonah, Udayi, et al., 2023).

However, significant barriers hinder the full adoption of AI within Nigeria's entrepreneurial ecosystem. Among the challenges are limited digital infrastructure, inadequate AI awareness and literacy, weak technical capacity, and regulatory uncertainties (Adeola & Evans, 2022; Mohammed & Yusuf, 2021). These challenges are particularly pronounced in semi-urban and rural areas where access to reliable digital resources remains low (Onyema, 2020). Nevertheless, forward-looking entrepreneurs in the Southeast have begun to implement AI-powered tools such as chatbots for customer service, predictive analytics for sales forecasting, recommendation engines for personalized marketing, and cybersecurity systems for digital operations (Ingwe, Abang, & Atah, 2025; Olom & Atah, 2025). Such developments underscore AI's emerging role in reshaping Nigeria's entrepreneurial landscape.

Given this technological evolution, it becomes imperative to critically examine the opportunities presented by AI for digital entrepreneurs in Nigeria and, specifically, how these technologies can be strategically leveraged for sustainable competitiveness. Empirical insights are urgently needed to evaluate the current state of AI adoption, the benefits realized, and the challenges that hinder deeper integration. This examination is essential for guiding policy directions, designing capacity-building initiatives, and fostering innovation-driven entrepreneurship (World Bank, 2020; Wilson, 2020). Such an approach will not only boost competitiveness but also contribute to Nigeria's broader goals of economic transformation and job creation (Uju, Asuo, Chukwurah, & Atah, 2024; Atah & Alabi, 2025b; Salem, 2020)

Empirical literature further validates the importance of this investigation. Adeola and Evans (2022) revealed that although awareness of AI tools among Nigerian SMEs is relatively high, actual usage remains limited due to cost barriers, infrastructural constraints, and lack of skills. However, entrepreneurs who successfully adopted AI for marketing and operations reported higher levels of customer engagement and business efficiency (Atah & Alabi, 2024). Similarly, Chalmers et al. (2020) established that entrepreneurs leveraging AI technologies scale their businesses more rapidly and innovate more effectively, though the full benefits depend on a strong digital

orientation. Onyema (2020) added that AI use in Nigeria is concentrated in urban centers, leaving rural entrepreneurs behind. Kraus et al. (2021) further noted that although AI adoption is expanding globally, emerging economies like Nigeria lag behind in terms of integration and innovation capacity.

Scholars have also emphasised AI's strategic role in providing competitive advantage. Brynjolfsson and McAfee (2017) showed that AI insights enable firms to respond swiftly to market changes, optimise pricing strategies and personalise user experiences, thereby outperforming competitors. Deloitte (2020) demonstrated that firms aligning AI with strategic operations reported stronger market responsiveness and innovation outcomes. PwC (2019) highlighted that AI contributed significantly to cost reduction, operational efficiency and improved customer experiences. In the Nigerian context, Adegbile and Sarpong (2021) found that AI-driven innovation enhanced customer retention and strengthened brand reputation, while Regina, Uju, Atah, and Idike (2024) revealed that digital-based learning initiatives enhanced the sustainability of Business Education programmes, demonstrating the cross-sectoral potential of digital innovation. Similarly, recent studies by **Akeke, Atah, Ushie, and Ingwe (2024)**, **Akeke et al. (2023)**, and **Bessong, Atah, and Ititim (2022)** further underscore the growing importance of digital technologies, innovation and emerging technological competencies in strengthening entrepreneurial development, business competitiveness and sustainable educational and economic outcomes in Nigeria.

Against this backdrop, this study seeks to investigate the extent to which digital entrepreneurs in Southeast Nigeria are leveraging AI technologies, the nature of opportunities available, and the strategic implications of such adoption for achieving and sustaining competitive advantage. By bridging the gap between theoretical frameworks and practical realities, this research aims to generate actionable insights that can inform educational practices, policy interventions, and entrepreneurial strategies. Ultimately, the study aspires to promote innovation, resilience, and inclusive growth among entrepreneurs within Nigeria's dynamic digital economy .

Problem of the Study

The global shift toward digitalization has fundamentally altered the way businesses operate, presenting new opportunities and challenges for entrepreneurs. In particular, the emergence of Artificial Intelligence (AI) has redefined business models, improved operational efficiencies, and enhanced customer engagement across various sectors. For digital entrepreneurs, AI offers significant advantages, including data-driven decision-making, automated business processes, personalized marketing, and predictive analytics. However, despite the acknowledged potential of AI to transform digital entrepreneurship, its adoption among entrepreneurs in Nigeria, especially in the Southeast geopolitical zone, remains limited and inconsistent. The Southeast zone, known for its entrepreneurial vibrancy, is gradually transitioning into the digital economy. Yet, a considerable number of entrepreneurs in the region either underutilize or are unaware of the strategic benefits AI technologies can offer. Factors such as low digital literacy, limited access to advanced technological infrastructure, high implementation costs, and inadequate policy frameworks continue to hinder AI adoption in small and medium digital enterprises. Consequently, many entrepreneurs are unable to harness AI as a tool for gaining competitive advantage, thereby limiting their ability to scale operations, innovate effectively, and compete in a rapidly evolving digital marketplace.

Moreover, there is a paucity of empirical research specifically examining how entrepreneurs in Southeast Nigeria are engaging with AI, what opportunities they are leveraging, and what strategic implications AI has for their long-term competitiveness. Without such data, policy makers, development partners, and educational institutions are ill-equipped to provide targeted support or design interventions that could enhance digital entrepreneurship in the region. This

study, therefore, seeks to address this critical gap by investigating the extent to which digital entrepreneurs in Southeast Nigeria are leveraging AI technologies, the opportunities available to them, and the strategic implications for building competitive advantage in the digital economy. It is expected that the findings will provide evidence-based insights to inform policy decisions, enhance entrepreneurial practices, and contribute to the literature on AI and digital entrepreneurship in emerging economies.

Research Questions

Two research questions were raised to guide the study

1. To what extent do extent to which entrepreneurs utilize Artificial Intelligence (AI) technologies in their digital business operations in Nigeria's Southeast Geopolitical Zone?
2. What is the impact of AI adoption on the competitive advantage of digital entrepreneurs in the Southeast geopolitical zone of Nigeria?

Research Hypotheses

The following null hypotheses were formulated to guide the study and were tested at the 0.05 level of significance:

1. There is no significant relationship between the use of artificial intelligence (AI) technologies and the competitive advantage of digital entrepreneurs in Southeast Nigeria.
2. The level of AI integration does not significantly influence business performance outcomes among digital entrepreneurs in Southeast Nigeria.

Method

This study assessed the utilization of Artificial Intelligence (AI) technologies and their impact on the competitive advantage of digital enterprises in the Southeast Geopolitical Zone of Nigeria. The states covered in the study were Abia, Anambra, Ebonyi, Enugu, and Imo. The research adopted a quantitative approach, utilizing descriptive survey design, which was considered appropriate as it allowed data collection from a large group of respondents and provided insights into prevailing trends and practices of AI adoption in business operations. The study population comprised 250 digital entrepreneurs, from which respondents were selected using the accidental sampling technique. Data were collected using a structured questionnaire titled *Leveraging Artificial Intelligence for Competitive Advantage in Digital Entrepreneurship (LAICADE)*, administered electronically via Google Forms. A personalized cover letter accompanied the questionnaire, explaining the purpose of the study, assuring confidentiality, and providing clear completion instructions. To improve response rates, follow-up emails and reminders were sent. In cases where online access was limited, alternative arrangements such as phone calls and support from local business associations were employed to distribute paper-based questionnaires.

The research instrument was validated by two experts in the Department of Vocational and Entrepreneurial Education, University of Calabar. Reliability was established through a pilot test conducted with 50 entrepreneurs from Cross River and Akwa Ibom States, yielding a Cronbach's Alpha coefficient of 0.79, which confirmed internal consistency. The instrument contained eight items in each section, structured on a four-point Likert scale (Strongly Agree, Agree, Disagree, and Strongly Disagree), designed to measure both the extent of AI usage and its perceived impact on business competitiveness. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics such as frequencies, percentages, mean scores, and standard deviations were used to answer the research questions, while correlation and regression analyses were employed to test the hypothesis. A benchmark mean score of 2.50 was adopted as the decision rule for interpretation on the four-point scale.

Findings of the Study

Research question 1

To what extent do extent to which entrepreneurs utilize Artificial Intelligence (AI) technologies in their digital business operations in Nigeria's Southeast Geopolitical Zone?

Table 1: Mean Ratings of Respondents' Decisions on the Extent extent do extent to which entrepreneurs utilize Artificial Intelligence (AI) technologies in their digital business operations

S/N	Item on AI Utilization	N	Mean	SD	Decision
1	I frequently use AI tools in my business operations.	250	3.78	0.82	Agree
2	My business utilizes AI for customer relationship management (CRM).	250	3.65	0.89	Agree
3	AI is a central part of our product development process.	250	3.42	0.94	Agree
4	I have the necessary skills to operate AI technologies in my business.	250	3.2	1.03	Agree
5	AI technologies have helped improve our marketing strategies.	250	3.84	0.76	Agree
6	I am able to gather valuable business insights using AI-based tools.	250	3.67	0.85	Agree
7	My business has adopted AI tools for data analysis and decision-making.	250	3.59	0.88	Agree
8	The adoption of AI technologies has significantly improved our operational efficiency.	250	3.81	0.79	Agree
	Cluster mean	250	**3.62**	0.87	**Agree**

The results in Table 1 indicate that entrepreneurs in Southeast Nigeria integrate Artificial Intelligence (AI) technologies into their digital business models to a high extent. All mean scores were above the decision benchmark of 2.50, showing strong agreement among respondents on AI adoption across different business functions. The highest-rated benefit was the improvement of marketing strategies (Mean = 3.84), followed by enhanced operational efficiency (Mean = 3.81), reflecting AI's dual role in driving growth and streamlining processes. Other key areas of integration included frequent use of AI tools in business operations (Mean = 3.78), generating business insights (Mean = 3.67), and strengthening customer relationship management (Mean = 3.65).

These findings suggest that entrepreneurs are applying AI beyond routine operations, leveraging it for strategic decision-making and customer engagement. Despite these positive outcomes, the relatively lower mean score for entrepreneurs' skills in operating AI technologies (Mean = 3.20) highlights a potential capacity gap. This suggests that while AI adoption is high, some entrepreneurs may lack the technical expertise to maximize its potential. Nonetheless, the cluster mean of 3.62 confirms a strong overall integration of AI technologies in digital enterprises within the region. These results demonstrate that AI is becoming an essential component of digital entrepreneurship in Southeast Nigeria, contributing to innovation, improved decision-making, marketing effectiveness, and operational efficiency.

Research question 2

What is the impact of AI adoption on the competitive advantage of digital entrepreneurs in the Southeast geopolitical zone of Nigeria?

Table 2: Mean Ratings of Respondents' Decisions on the impact of AI adoption on the competitive advantage of digital entrepreneurs

S/N	Items on Competitive Advantage	N	Mean	SD	Decision
1	AI has helped my business gain a competitive advantage over rivals.	250	3.76	0.80	Agree
2	Our customers perceive our business as more innovative due to AI adoption.	250	3.69	0.85	Agree
3	The use of AI allows us to quickly adapt to changing market demands.	250	3.81	0.79	Agree
4	AI tools help my business provide more personalized services to customers.	250	3.88	0.72	Agree
5	AI has enabled my business to streamline operations and reduce costs.	250	3.73	0.84	Agree
6	The integration of AI technologies has given us a unique value proposition in the market.	250	3.60	0.91	Agree
7	We have seen an increase in customer loyalty due to our use of AI.	250	3.45	0.95	Agree
8	AI-driven strategies have enhanced our market positioning and brand perception.	250	3.70	0.83	Agree
	Cluster Mean	**250**	**3.70**	**0.83**	**Agree**

The results in Table 2 show that the adoption of Artificial Intelligence (AI) technologies significantly enhances the competitive advantage of digital entrepreneurs in Southeast Nigeria. With all mean scores above the decision benchmark of 2.50, respondents strongly agreed that AI integration contributes to various dimensions of business success. The highest-rated benefit was AI's role in enabling personalized services for customers (Mean = 3.88), followed by its ability to enhance adaptability to changing market demands (Mean = 3.81).

These findings highlight personalization and agility as critical factors in maintaining competitiveness in dynamic markets. Further evidence from the data reveals that AI adoption improves operational efficiency, reduces costs, and strengthens brand perception, with mean scores ranging from 3.69 to 3.76. Entrepreneurs also acknowledged AI's contribution to innovation, market positioning, and customer loyalty, although the latter received a comparatively lower mean of 3.45. The cluster mean of 3.70 affirms the overall positive effect of AI adoption on competitive advantage. In summary, AI is perceived as a strategic tool that empowers digital entrepreneurs to innovate, optimize operations, enhance customer satisfaction, and sustain long-term competitiveness in the digital economy.

Testing of Hypotheses

Hypothesis one

There is no significant relationship between the use of artificial intelligence (AI) technologies and the competitive advantage of digital entrepreneurs in Southeast Nigeria.

Table 3: summary of Pearson Correlation between AI Utilization and Competitive Advantage of Digital Entrepreneurs (N = 250)

Variables	Mean	SD	r	p-value	Decision
AI Utilization	3.41	0.72			
				0.000	H_{01} Rejected
Competitive Advantage	3.56	0.68	0.642		

The Pearson correlation result presented in Table 3 shows that AI utilization has a mean score of 3.41 (SD = 0.72), while competitive advantage has a mean score of 3.56 (SD = 0.68). The correlation coefficient (r) between AI utilization and competitive advantage is 0.642, indicating a strong positive relationship between the two variables. The associated p-value is 0.000, which is less than the 0.05 level of significance. Based on the decision rule, since $p < 0.05$, the null hypothesis (H_{01}) is rejected. This implies that there is a statistically significant relationship between the use of AI technologies and the competitive advantage of digital entrepreneurs in Southeast Nigeria. In other words, greater utilization of AI technologies enhances the ability of digital entrepreneurs to gain and sustain competitive advantage in their business operations.

Hypothesis two

The level of AI integration does not significantly influence business performance outcomes among digital entrepreneurs in Southeast Nigeria.

Table 4: Simple Linear Regression Analysis of AI Integration on Business Performance Outcomes (N = 250)

Model Predictor	β	R^2	t-value	p-value	Decision
AI Integration Level	0.58	0.41	12.47	0.000	H_{02} Rejected

The regression analysis result in Table 4 shows that the predictor variable, AI integration level, has a standardized beta (β) coefficient of 0.58, indicating a strong positive effect on business performance outcomes. The coefficient of determination (R^2) is 0.41, which implies that 41% of the variation in business performance outcomes can be explained by the level of AI integration. The t-value is 12.47, and the corresponding p-value is 0.000, which is less than the 0.05 level of significance. Based on the decision rule, since $p < 0.05$, the null hypothesis (H_{02}) is rejected. This result shows that the level of AI integration significantly influences business performance outcomes among digital entrepreneurs in Southeast Nigeria. In practical terms, the more entrepreneurs integrate AI into their business operations, the greater the improvement in efficiency, customer satisfaction, and overall business performance.

Discussion of Findings

The extent to which entrepreneurs utilize Artificial Intelligence (AI) technologies in their digital business operations in Nigeria's Southeast Geopolitical Zone

The findings of this study indicate that digital entrepreneurs in Southeast Nigeria have embraced Artificial Intelligence (AI) technologies across multiple facets of their business models. Respondents reported extensive use of AI for marketing, operational efficiency, customer relationship management, insight generation, and strategic decision-making. Marketing emerged as the most prominent application, reflecting the critical role of AI-driven analytics and automation in reaching and engaging customers. These results align closely with Chalmers, MacKenzie, and Carter's (2020) observation that AI empowers entrepreneurs to enhance product development, deepen customer interactions, and accelerate business growth. By leveraging AI for targeted marketing campaigns and tailored customer journeys, entrepreneurs in the Southeast demonstrate how digital tools can translate into competitive differentiation and market responsiveness. Similarly, Adeola and Evans (2022) noted that AI adopters enjoy improved

customer engagement and satisfaction. Our study confirms this benefit: entrepreneurs highlighted AI's capacity to personalize service delivery and strengthen relationships with clients. Yet, whereas Adeola and Evans emphasized persistent barriers—such as prohibitive costs, infrastructure gaps, and skill shortages—our findings suggest that many Southeast entrepreneurs have begun to overcome these challenges, likely driven by urban infrastructure improvements, expanding innovation hubs, and rising digital literacy.

Nevertheless, the skill gap identified by Adeola and Evans and echoed by Onyema (2020) persists. Respondents pointed to ongoing needs for training and technical support, underscoring that while AI tools are in use, maximizing their potential still depends on enhancing human capacity. This highlights an urgent priority for policymakers, industry associations, and academic institutions to develop targeted upskilling initiatives that bridge technical competencies with entrepreneurial ambitions. The study also lends nuance to Onyema's (2020) regional divide in AI adoption. Urban-based entrepreneurs in the Southeast appear to lead the way in implementing advanced AI applications, whereas those operating in less digitized environments continue to face infrastructural constraints. This uneven landscape underscores the importance of extending broadband connectivity and affordable digital infrastructure beyond metropolitan centers to foster more inclusive AI diffusion.

Finally, our findings partially corroborate Kraus et al. (2021), who described AI integration in emerging markets as nascent but growing. Entrepreneurs in Southeast Nigeria are indeed demonstrating a relatively advanced embrace of AI; however, the journey toward full-scale, strategic deployment remains a work in progress. Continued investment in both technological infrastructure and human capital will be essential if the region is to sustain its early gains and translate AI adoption into long-term competitive advantage.

The impact of AI-driven strategies on the competitive advantage of digital enterprises in Nigeria's Southeast Geopolitical Zone

The findings of the study provide strong evidence that the adoption of Artificial Intelligence (AI) technologies positively influences the competitive advantage of digital entrepreneurs in the Southeast geopolitical zone of Nigeria. Respondents consistently acknowledged that AI enhances several dimensions of business performance, contributing to strategic positioning and long-term success in the digital economy. One of the most prominent benefits identified is the ability of AI tools to facilitate personalized service delivery. Entrepreneurs reported that AI enables them to better understand and respond to individual customer preferences, thus improving customer satisfaction and engagement. This personalization serves as a key differentiator in an increasingly competitive digital marketplace, where customer-centric services are essential for brand loyalty and growth.

Furthermore, AI adoption was seen to enhance the responsiveness of businesses to evolving market conditions. Digital entrepreneurs indicated that AI provides the agility needed to adapt quickly to changes in consumer behavior, market demands, and industry trends. This strategic adaptability allows businesses to remain relevant and competitive in dynamic environments. Operational efficiency is another significant area where AI integration proves valuable. Entrepreneurs highlighted that AI has streamlined their processes, reduced manual workloads, and optimized resource utilization. This not only minimizes operational costs but also improves the speed and quality of service delivery, giving them an edge over less tech-enabled competitors. The findings also reveal that AI contributes to a stronger brand image and improved market positioning. Businesses that adopt AI are perceived as more innovative, forward-thinking, and technologically advanced. Such perceptions influence customer trust and market credibility, further solidifying the enterprise's competitive stance.

In addition, respondents acknowledged that AI-driven strategies have helped them outperform rivals by enabling better decision-making, enhancing product and service quality, and supporting data-driven marketing campaigns. Although improvements in customer loyalty were not as

strongly emphasized as other areas, there was still a notable perception that AI contributes to fostering long-term relationships with clients. These outcomes align with global trends and empirical evidence. Brynjolfsson and McAfee (2017) noted that AI empowers firms to make smarter decisions, personalize offerings, and rapidly adjust to market trends—thereby achieving a competitive edge. Deloitte (2020) found that businesses integrating AI into their strategic operations witnessed enhanced innovation and adaptability. PwC (2019) reported similar outcomes, highlighting cost reductions, efficiency gains, and personalized customer experiences as key benefits of AI. In the Nigerian context, Adegbile and Sarpong (2021) observed that AI adoption significantly improved customer retention and brand reputation, enabling businesses to outperform traditional rivals. In summary, the study affirms that AI is a transformative tool for digital entrepreneurs. Its adoption strengthens multiple facets of competitive advantage, including innovation, responsiveness, operational effectiveness, brand perception, and customer engagement. These findings underscore the critical role of AI in shaping the success and sustainability of entrepreneurial ventures in Nigeria's digital economy.

Conclusion

This study concludes that Artificial Intelligence (AI) has moved beyond being an emerging technological innovation to becoming an important strategic tool for digital entrepreneurship in Nigeria's Southeast Geopolitical Zone. The findings revealed that entrepreneurs utilise AI technologies in various aspects of digital business operations, including marketing, customer engagement, business analytics, decision-making, fraud detection and process automation. Such utilisation enhances operational efficiency, improves customer satisfaction, supports informed decision-making and enables entrepreneurs to respond more effectively to changing market conditions. The study therefore establishes that effective utilisation of AI can significantly strengthen the capacity of digital entrepreneurs to operate efficiently and adapt to the increasingly technology-driven business environment.

The study further concludes that the strategic application of AI-driven strategies provides digital enterprises with opportunities to achieve and sustain competitive advantage. By applying AI to market analysis, customer personalisation, innovation, pricing, forecasting and operational management, entrepreneurs can improve responsiveness, reduce inefficiencies and create greater value for customers. However, the effectiveness of AI adoption depends on entrepreneurs' digital competencies and their ability to align AI applications with specific business objectives. Consequently, AI should no longer be viewed as an optional technological innovation but as an important foundation for building innovative, efficient, resilient and competitive digital enterprises capable of achieving sustainable growth in the 21st-century economy.

Recommendations of the Study

Based on the findings, the following recommendations are proposed:

1. **Entrepreneurs should improve AI utilisation** through continuous training and practical application of AI tools in their digital business operations.
2. **Entrepreneurs should integrate AI strategically** into marketing, customer service, data analysis, innovation and decision-making to gain competitive advantage.
3. **Government and business stakeholders should support AI adoption** through training, affordable digital infrastructure, funding, incentives and access to relevant AI solutions.

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